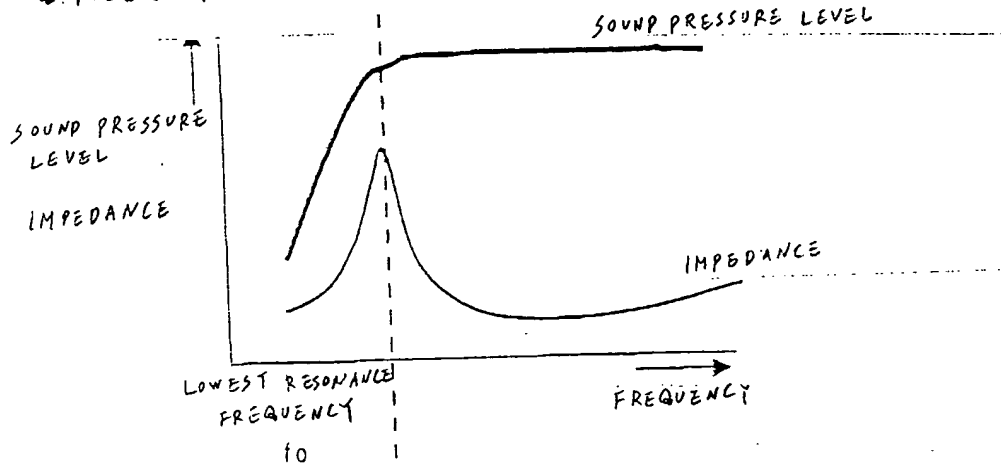


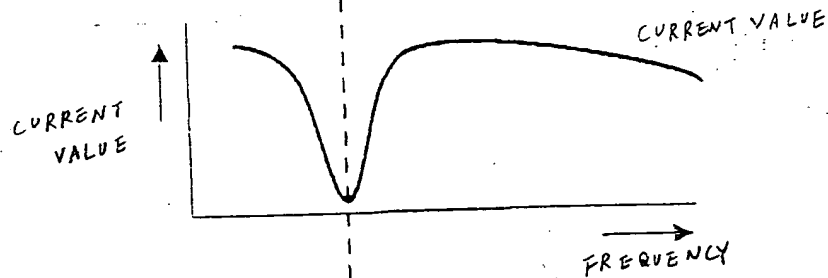
## APPENDIX 1

## 1-A CHARACTERISTIC OF ORDINARY SPEAKER

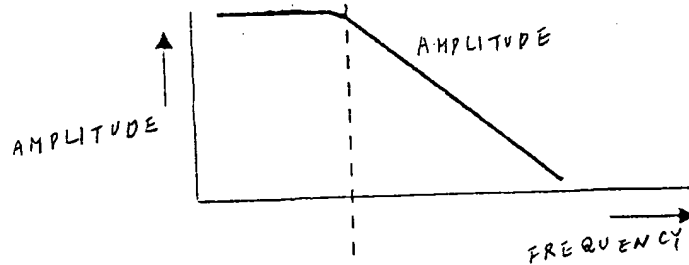
- FREQUENCY - SOUND PRESSURE LEVEL
- FREQUENCY - IMPEDANCE



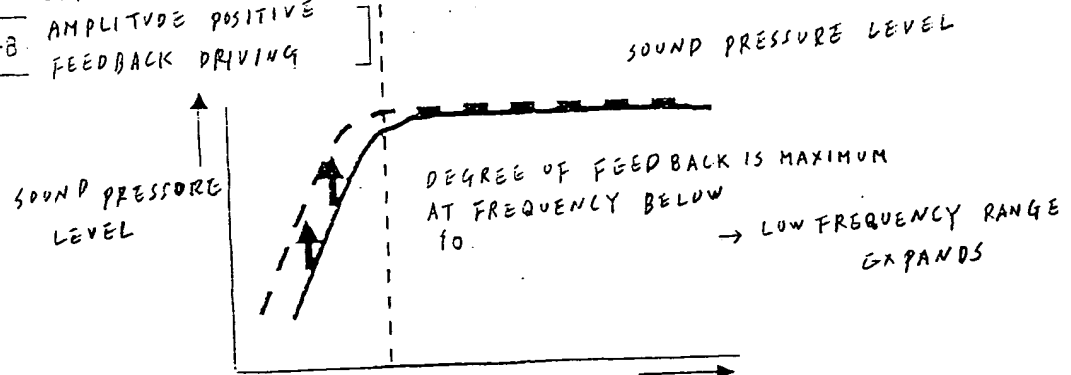
- FREQUENCY - CURRENT VALUE



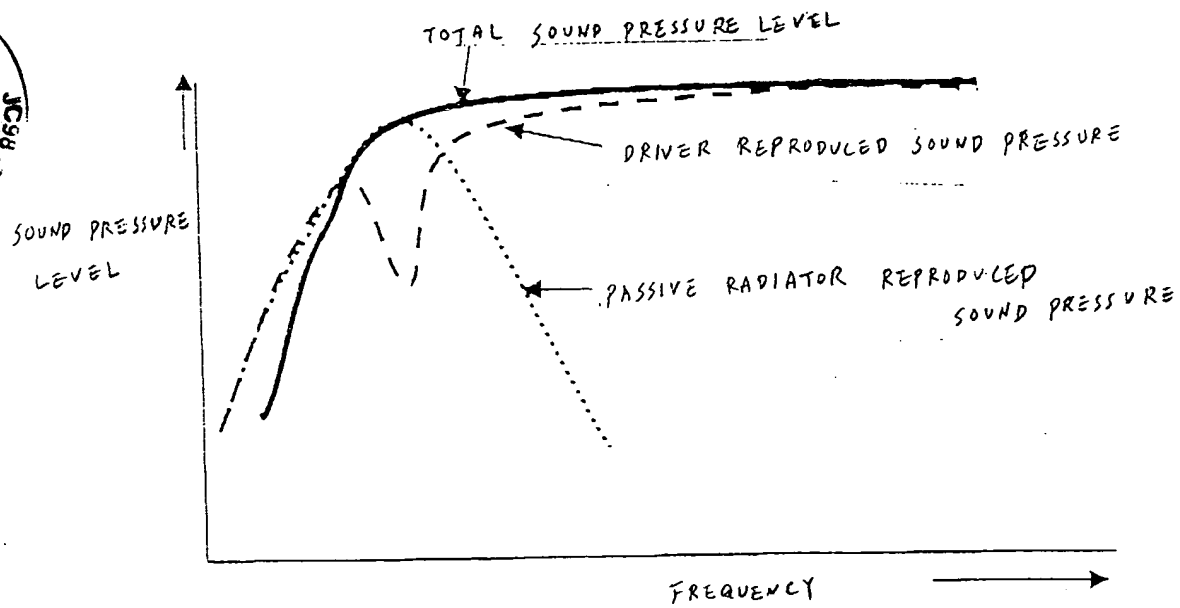
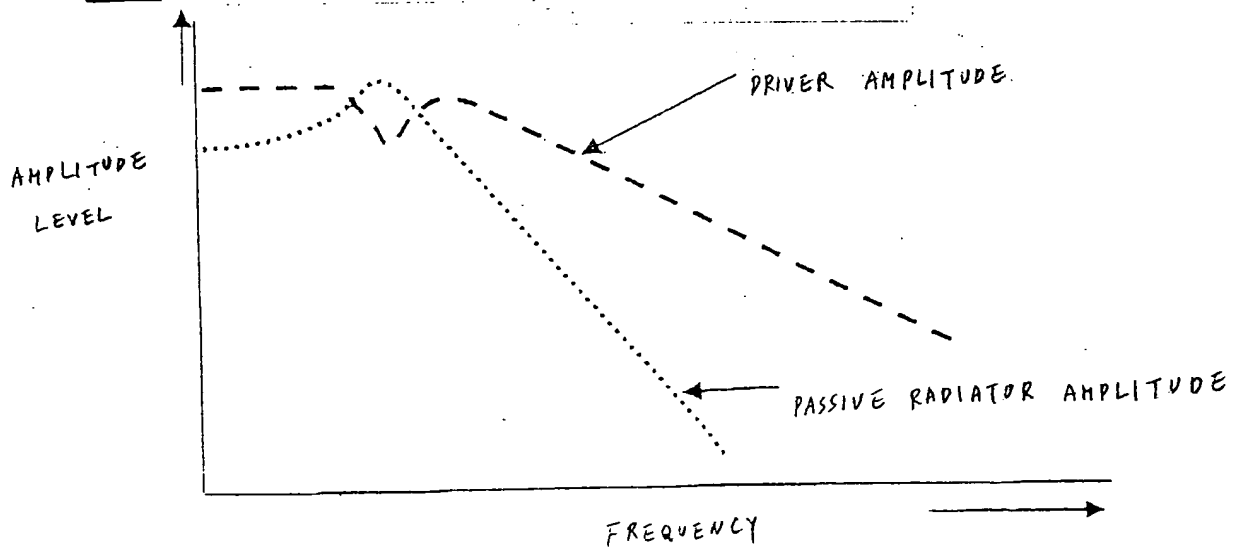
- FREQUENCY - AMPLITUDE



CHARACTERISTIC OF  
 1-B AMPLITUDE POSITIVE  
 FEEDBACK DRIVING



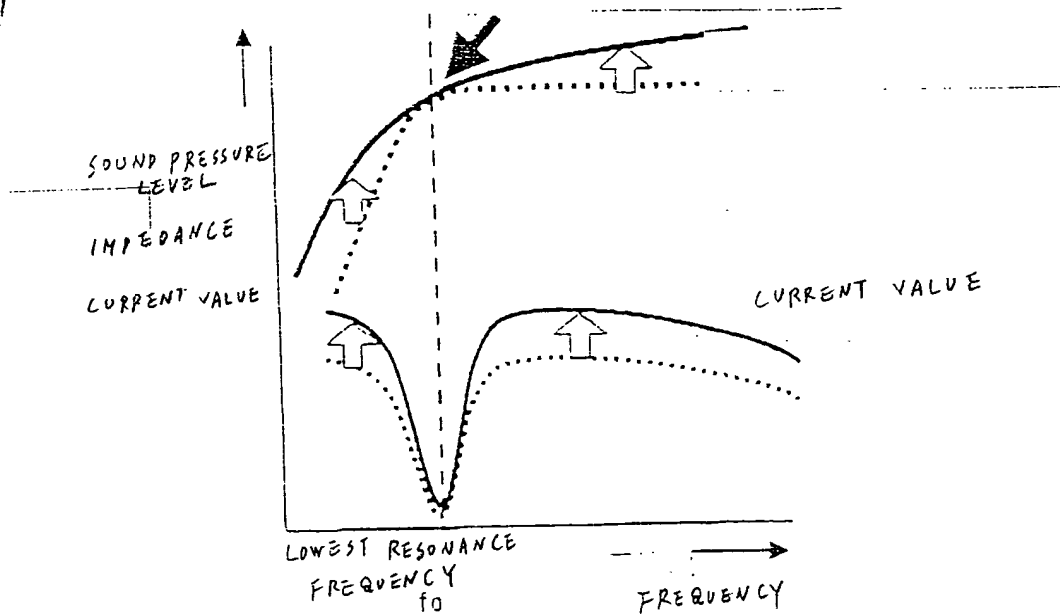
## APPENDIX 2

2-A REPRODUCED SOUND PRESSURE OF  
DRIVER AND PASSIVE RADIATOR2-B AMPLITUDE OF  
DRIVER AND PASSIVE RADIATOR

## APPENDIX 3

CURRENT POSITIVE FEEDBACK OPERATION (NEGATIVE IMPEDANCE DRIVING)

- WHEN CURRENT FLOWS, THE CURRENT FURTHER FLOWS DUE TO POSITIVE FEEDBACK
- DEGREE OF FEEDBACK IS MINIMUM AT  $f_0$



ADDITIONAL  
 APPENDIX

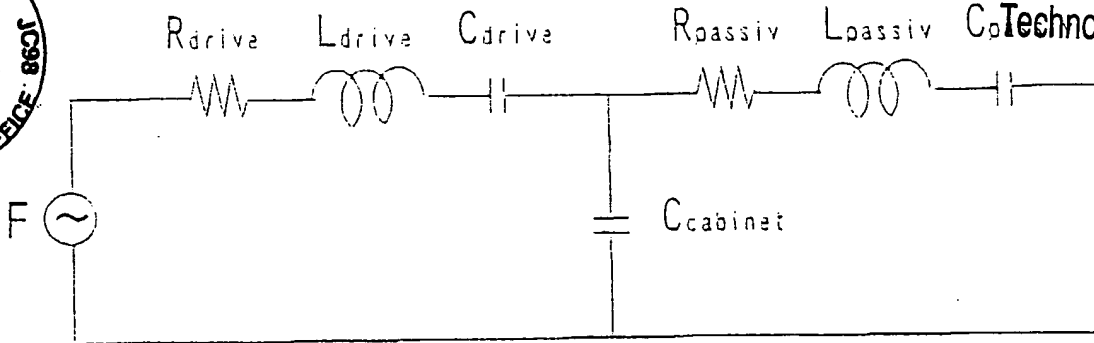
EQUIVALENT CIRCUIT OF PASSIVE RADIATOR AND ITS OPERATION

VOLTAGE  $F$  : DRIVING FORCE  
 CURRENT  $I$  : VIBRATING SPEED  
 $R_{drive}$  : EQUIVALENT MECHANICAL RESISTANCE OF DRIVER VIBRATING SYSTEM  
 $L_{drive}$  : EQUIVALENT MASS OF DRIVER VIBRATING SYSTEM  
 $C_{drive}$  : EQUIVALENT COMPLIANCE OF DRIVER VIBRATING SYSTEM  
 $R_{passiv}$  : EQUIVALENT MECHANICAL RESISTANCE OF PASSIVE RADIATOR VIBRATING SYSTEM  
 $L_{passiv}$  : EQUIVALENT MASS OF PASSIVE RADIATOR VIBRATING SYSTEM  
 $C_{passiv}$  : EQUIVALENT COMPLIANCE OF PASSIVE RADIATOR VIBRATING SYSTEM  
 $C_{cabinet}$  : EQUIVALENT COMPLIANCE OF CABINET

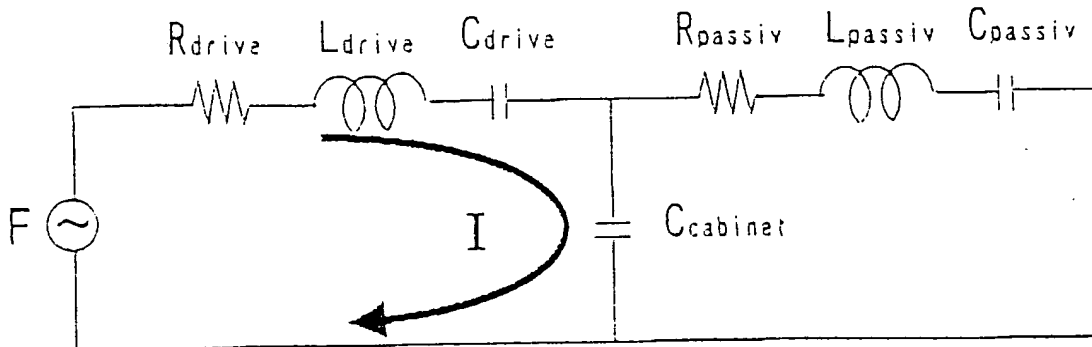
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- ① FREQUENCY HIGHER THAN RESONANCE FREQUENCY:  
 ONLY DRIVER VIBRATES, BUT PASSIVE RADIATOR DOES NOT VIBRATE



- ③ RESONANCE FREQUENCY: CABINET COMPLIANCE AND PASSIVE RADIATOR PRODUCE  
 PARALLEL RESONANCE AND AMPLITUDE OF PASSIVE RADIATOR BECOMES MAXIMUM.  
 DUE TO PARALLEL RESONANCE, IMPEDANCE BETWEEN (A) AND (B) IN EQUIVALENT CIRCUIT  
 INCREASES AND DRIVER AMPLITUDE DECREASES.

